

claims be withdrawn.

### Claims 38-51

Independent claim 38 was rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,165,834 (Agarwal). Applicants have herein amended claim 38 to clarify that the first electrode extends above an uppermost surface of a substrate assembly. Applicants respectfully submit that amended claim 38, and claims 39, 42-43 and 45-49 which depend therefrom, are not anticipated by Agarwal. Accordingly, Applicants respectfully request that the § 102(e) rejections associated with these claims be withdrawn.

Applicants also submit that amended claim 38 is nonobvious over the combination of Agarwal and U.S. Patent 6,222,722 (Fukuzumi). Claims 40-43, 45 and 48, which depend from claim 38, were rejected under 35 U.S.C. § 103(a) as being obvious over Agarwal taken with Fukuzumi. In the Office Action, the Examiner has asserted that “it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the electrodes or the dielectric of Agrawal by using other alternative materials as well known in the semiconductor art and as combinatively taught by Fukuzumi and Agarwal.” Applicants respectfully disagree with this assertion and argue that even if taken as true, amended claim 38 would still be nonobvious over the combination of Argarwal and Fukuzumi because the cited references, either alone or in combination, fail to teach or suggest each and every element of amended claim 38. *See* MPEP § 2143 (stating that one of the elements of a *prima facie* case of obviousness under § 103(a) is that the cited references must teach or suggest every limitation of the claimed invention). Applicants further submit that claims 40-43, 45 and 48, which depend from amended claim 38, are also nonobvious over the cited references. *See* MPEP

§2143.03 (stating that if an independent claim is nonobvious under §103(a), then any claim depending therefrom is nonobvious).

Claims 38-43, 45-49 and 51 were also rejected under 35 U.S.C. § 103(a) as being obvious over Fukuzumi taken with Agarwal. For reasons similar to those set forth hereinabove, Applicants submit that amended claim 38 is nonobvious over the combination of Fukuzumi and Agarwal. *See* MPEP § 2143 *id.* Applicants further submit that claims 39-43, 45-49 and 51, which depend from amended claim 38, are also nonobvious over the cited references. *See* MPEP § 2143.03 *id.*

Claims 38-43 and 45-49 were also rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent 5,478,772 (Fazan) taken with Agarwal and Fukuzumi. In the Office Action, the Examiner has asserted that “it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the capacitor of Fazan by forming the second electrode on the dielectric and on the uppermost surface of the substrate assembly as shown by Agarwal” and that “it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the electrode or the dielectric of Fazan by using other alternative materials as well known in the semiconductor art and as combinatively taught by Fukuzumi and Fazan.” Applicants respectfully disagree with these assertions and argue that even if taken as true, amended claim 38 would still be nonobvious over the combination of Fazan, Argarwal and Fukuzumi because the cited references, either alone or in combination, fail to teach or suggest each and every element of amended claim 38. *See* MPEP § 2143 *id.* Applicants further submit that claims 39-43 and 45-49, which depend from amended claim 38, are also nonobvious over the cited references. *See* MPEP § 2143.03 *id.* Accordingly, Applicants request that the § 103(a) rejections associated with claims 38-43, 45-49 and 51 be withdrawn.

Claim 51 was also objected to for having a typographical error. Applicants have herein amended claim 51 to include the previously recited term “polysilicon” after the word “grain.” Accordingly, Applicants respectfully request that the objection to claim 51 be withdrawn.

#### Claims 52-57

Claims 52-57 were rejected under 35 U.S.C. § 103(a) as being obvious over Fukuzumi taken with Agarwal. Applicants have herein amended independent claim 52 to clarify that the first electrode extends above an uppermost surface of a substrate assembly. For reasons similar to those set forth hereinabove with respect to amended claim 38, Applicants submit that amended claim 52 is nonobvious over the combination of Fukuzumi and Agarwal. *See* MPEP § 2143 *id.* Applicants further submit that claims 53-57, which depend from amended claim 52, are also nonobvious over the cited references. *See* MPEP § 2143.03 *id.* Accordingly, Applicants request that the § 103(a) rejections associated with claims 52-57 be withdrawn.

In addition, Applicants point out that independent claim 52 recites “forming a layer of hemispherical grain polysilicon” whereas claim 51, which depends from independent claim 38, recites “forming a layer of hemispherical grain on the substrate assembly.”

#### Claims 58-60

Claims 58-60 were rejected under 35 U.S.C. § 103(a) as being obvious over Fukuzumi taken with Agarwal. Applicants have herein amended independent claim 58 to clarify that the first electrode extends above an uppermost surface of the substrate assembly. For reasons similar to those set forth hereinabove with respect to amended claim 38, Applicants submit that amended claim

58 is nonobvious over the combination of Fukuzumi and Agarwal. *See* MPEP § 2143 *id.* Applicants further submit that claims 59-60, which depend from amended claim 58, are also nonobvious over the cited references. *See* MPEP § 2143.03 *id.* Accordingly, Applicants request that the § 103(a) rejections associated with claims 58-60 be withdrawn.

Marked-Up Version of Changes Made to Claims

Attached hereto is a marked-up version of the changes made to the claims by this amendment. The first page of the marked-up version is captioned **“VERSION WITH MARKINGS TO SHOW CHANGES MADE.”**

CONCLUSION

Applicants respectfully request a Notice Of Allowance for the pending claims in the present application. If the Examiner is of the opinion that the present application is in condition for disposition other than allowance, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below in order that the Examiner's concerns may be expeditiously addressed.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Robert A. Muha", written over a horizontal line.

Robert A. Muha  
Reg. No. 44,249

KIRKPATRICK & LOCKHART, LLP  
Henry W. Oliver Building  
535 Smithfield Street  
Pittsburgh, Pennsylvania 15222

Telephone: (412) 355-8244  
Facsimile: (412) 355-6501  
E-mail: [rmuha@kl.com](mailto:rmuha@kl.com)

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the Claims**

The claims have been amended as indicated below.

38. (Twice Amended) A method of forming a capacitor including:

forming a first electrode selected from a group consisting of transition metals, conductive metal-oxides, alloys thereof, and combinations thereof, wherein the first electrode extends above an uppermost surface of a substrate assembly;

forming a dielectric on the first electrode and [an] the uppermost surface of [a] the substrate assembly; and

forming a second electrode on the dielectric and the uppermost surface of the substrate assembly.

51. (Three Times Amended) The method of claim 38, wherein forming the first electrode includes:

forming a layer of hemispherical grain polysilicon on the substrate assembly; and

forming the first electrode on the hemispherical grain polysilicon.

52. (Twice Amended) A method of forming a capacitor, comprising:

forming a layer of hemispherical grain polysilicon;

forming a first electrode on the hemispherical grain polysilicon, wherein the first electrode is

selected from a group consisting of transition metals, conductive metal-oxides, alloys thereof, and combinations thereof, and wherein the first electrode extends above an uppermost surface of a substrate assembly;

forming a dielectric on the first electrode and [an] the uppermost surface of [a] the substrate assembly; and

forming a second electrode on the dielectric and the uppermost surface of the substrate assembly.

58. (Twice Amended) A method, comprising:

forming a substrate assembly;

forming a layer of hemispherical grain polysilicon on the substrate assembly;

forming a first electrode on the hemispherical grain polysilicon, wherein the first electrode is selected from a group consisting of transition metals, conductive metal-oxides, alloys thereof, and combinations thereof, and wherein the first electrode extends above an uppermost surface of the substrate assembly;

removing a portion of the substrate assembly;

removing the hemispherical grain polysilicon;

forming a dielectric on the first electrode and [an] the uppermost surface of the substrate assembly; and

forming a second electrode on the dielectric and the uppermost surface of the substrate assembly.